

**U.S. Department of Commerce**  
**Sustainable Manufacturing Initiative**  
**Sector Focus Study Series**

**Packaging Machinery:**  
**Sustainability and Competitiveness**

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## **Executive Summary**

U.S. manufacturers of packaging machinery can compete successfully in both domestic and international markets by pursuing business strategies based on sustainability. Many innovative U.S. original equipment manufacturers (OEMs) of packaging machinery are already doing this. The sustainability strategies identified in this report, “Packaging Machinery: Sustainability and Competitiveness,” enable U.S. packaging machinery OEMs to target the largest cost per value component of the global packaging market: packaging materials, which are worth an estimated \$475 billion annually.<sup>i</sup>

The principal findings of this study include the following:

- Packaging machinery OEMs operate in a global packaging supply chain that faces increasing demands for sustainability.
- Retailers, in particular, play a key role in driving demand for more sustainable packaging throughout the supply chain, even though they generally are not end users of packaging machinery.
- Reducing customers’ consumption of packaging materials and ancillary products is the common objective of packaging machinery OEMs that have incorporated sustainability into their core business strategy.
- Reducing customers’ packaging-related consumption of energy and water and emissions of greenhouse gases (GHGs) are also key components of successful sustainability strategies.
- Opportunity and innovation drive a successful business strategy based on sustainability for packaging machinery OEMs.
- OEMs with sustainability strategies frequently identify and pursue opportunities for innovation as a result of their ongoing roles as technology suppliers to their customers.

- There is no appreciable demand at present for packaging machinery with sustainable characteristics, as such; end users' procurement practices for packaging machinery do not yet reflect senior management's emphasis on sustainability.
- OEMs are likely to begin encountering demand for packaging machinery with sustainable characteristics in the near future, as their customers aggressively seek to reduce energy and water use, GHG emissions, and waste throughout their manufacturing operations.
- The lack of definitions, certifications, or standards for sustainability in packaging machinery appears to contribute to the lack of demand.
- European laws, regulations, and standards concerning packaging and machinery are shaping the world market.
- Each OEM in this study has its own distinctive approach to sustainability, but all of them focus their efforts on technologies and services to reduce customers' consumption of the following:
  - Packaging materials
  - Ancillary products, especially inks and adhesives
  - Energy and water in selected applications
- The cost savings that a focus on materials offers manufacturers of consumer packaged goods (CPG) are what make these OEMs and their products highly competitive.
- Sustainability strategies in the packaging machinery industry typically are oriented around one or more of the following:
  - Automation and integration services and technologies, including remote monitoring
  - Reduction of energy consumption connected with ancillary products
  - Development of innovative ancillary products
  - Development of new packaging systems

- OEMs in this study use one of several recognized methodologies to measure the benefits conferred by their sustainability strategies. These include Life Cycle Assessment (LCA), Total Cost of Ownership (TCO), or Overall Equipment Effectiveness (OEE).
- OEMs in this study have frequently formed strategic relationships with converters or other suppliers of packaging materials or ancillary products.

OEMs of all sizes, involving a variety of business models, are enjoying competitive success with business strategies based on sustainability. In doing so, they are aligning themselves with many others in the packaging supply chain that have also embraced sustainability, including many of their customers. They are also preparing for the day when end users begin demanding more sustainable packaging machinery.

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<sup>i</sup> World Packaging Organization, “Position Paper: Market Trends and Developments,” World Packaging Organization, Stockholm, 2008, p. 1.